United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

MAR 3 1 2004

IN REPLY
REFER TO:

MP-150
ENV-1.10

Mr. Philip Woodward
Regional Water Quality Control Board
Central Valley Region
415 Knollcrest Drive, Suite 100
Redding, California 96002

Subject: Use Attainment Analysis (UAA), West Squaw Creek Watershed Draft Report, the Regional Water Quality Control Board's (RWQCB) Staff Report and Appendix B

Dear Mr. Woodward:

The Bureau of Reclamation respectfully requests an extension for the comment period as there was not enough time to review the document in detail. We request that we be given until May 1, 2004, to provide our final comments. Our basic view at this time is that Alternative 1 – No Action, from the RWQCB's Staff Report be adopted.

The information provided in the reports does not provide enough engineering detail or water quality and aquatic biota data required to support a determination. The determination being that beneficial uses proposed for de-designation in West Squaw Creek (WSC) cannot be attained through the implementation of additional currently available remedial technologies.

It is important that Best Available Technologies and Best Management Practices continue to be implemented for non-point sources at WSC. The information provided for the proposed Basin Plan amendment does not address the potentially significant environmental impacts on downstream water bodies that would result from the proposed de-designation of beneficial uses in WSC. These adverse impacts include impairing Reclamation's ability to meet water temperature requirements and to meet protective water quality standards for metals in the Sacramento River which are mandated by the Basin Plan and the Endangered Species Act. In essence, we believe that the action being considered has ramifications on Reclamation's water operations (which are done to meet a host of needs/requirements) that have not been fully considered or analyzed.

Enclosed for your review is the compilation of comments from Reclamation, to date, for the Draft UAA, the RWQCB's Staff Report, and Appendix B.

If you have any questions, please contact Michelle Prowse, Hazardous Materials Specialist, at 916-978-5036 or e-mail: mprowse@mp.usbr.gov.

Sincerely,

Frank Michny
Regional Environmental Officer

Enclosures

Attachment 1
U.S. Bureau of Reclamation
Baseline Water Quality Monitoring Program
Sacramento River
(ug/L)

Date	Below Shasta Dam			Below Keswick Dam		
	Cadmium	Copper	Zinc	Cadmium	Copper	Zinc
2/18/1998	–	–	–	<1.0	<20	<20
5/19/1998	<1.0	<20	<20	<1.0	<20	<20
9/15/1998	<1.0	<20	<20	<1.0	<20	<20
11/18/1998	<1.0	<20	<20	<1.0	<20	<20
2/15/1999	<0.50	2.9	<20	<0.50	4.5	<20
5/18/1999	<0.50	3.4	<20	<0.50	4.2	<20
8/24/1999	<0.50	2.3	<20	<0.50	1.9	<20
11/1/1999	<0.50	2.1	<20	<0.50	2.2	<20
3/6/2000	<0.50	2.5	<20	<0.50	4.4	<100
5/15/2000	<0.50	2.2	<20	<0.50	3.5	<20
8/14/2000	<0.50	1.8	7.8	<0.50	1.6	5.1
11/6/2000	<0.50	1.5	8.7	<0.50	1.9	7.2
2/26/2001	<0.50	1.2	1.1	<0.50	3.9	10
5/14/2001	<0.50	6.6	6.4	24	6.6	8.3
8/13/2001	<0.50	<0.30	1.9	<0.50	0.86	2.1
11/5/2001	<0.50	0.66	<1.0	<0.50	0.80	1.9
2/11/2002	<0.25	4.1	13	<0.25	4.3	16
5/20/2002	<0.50	2.0	<20	<0.50	2.0	<20
8/26/2002	<0.30	1.1	4.0	<0.30	1.0	2.0
11/18/2002	<0.25	0.70	<20	<0.25	1.7	<20
2/24/2003	<0.25	1.5	<20	<0.25	1.9	<20
5/19/2003	<0.25	1.6	<10	<0.25	1.9	<10
8/18/2003	<0.25	0.80	<10	<0.25	1.0	<10
11/17/2003	<0.25	0.90	<10	<0.25	1.2	<10

Comments - Reclamation

Summary of the U.S. Bureau of Reclamation's (Reclamation's) concerns regarding proposed Basin Plan Amendment for adoption by the Regional Water Quality Control Board (RWQCB) to remove the designated beneficial uses for support of warm and cold water aquatic habitat (WARM and COLD), and warm and cold spawning.

1. Ability to meet Basin Plan objective of water quality – particularly the copper concentration amount of 5.6 ug/L

   a. "Reductions in metals loads in Keswick Dam releases resulting from remediations at the IMM site, in combination with improved Reclamation dam release manipulations and **remediation activities at mines in the Shasta Lake area**, are expected to reduce dissolved metal loads and concentrations measured in the Sacramento River between Keswick Dam and Bend Bridge." Basin Plan objectives – RWQCB

   b. Reclamation is not responsible for the metal load reductions. Reclamation has always taken a proactive stance in order to protect water quality for the environment, water users, etc. Reclamation is not a source of mining pollution.

   c. West Squaw Creek (WSC) effluent will increase the copper, cadmium and zinc concentrations in Shasta Lake reducing assimilation capacity for downstream dilution from Spring Creek and Iron Mountain Mine (IMM). The proposed amendment must address the projected complex Central Valley Project (CVP) operations.

2. Temperature Control Device (TCD) operation:

   a. The purpose of the Shasta TCD is to conserve and control coldwater resources in Shasta Dam in order to comply with SWRCB WR90-5 intent. (i.e. beneficial use coldwater fishery)

   b. The TCD is not operated to control nor manage metal concentrations. It was not authorized for this purpose.

   c. To modify TCD operations to draw from deep in the lake (pre-TCD operations at penstock elevation 815) would significantly degrade the coldwater conservation objective.

   d. Our current winter time TCD operation is to draw water through the TCD from the highest TCD gate with 30-35 ft of lake submergence. (This conserves the coldwater deep in the lake)

e. If this submergence level is the area of increased metal concentrations, then it affects our dilution capacity at Spring Creek Debris Dam (SCDD) and IMM issues. (Increasing the probability of SCDD spills) and/or prolonged exposure near the Basin Plan objectives or increased need for specific dilution flows from Shasta Lake, which has the potential to become a vicious cycle for metals.

f. If the TCD were operated to draw deep in the lake during the wintertime months, the spring summer coldwater pool would be decreased in volume, becoming a SWRCB 90-5 and ESA winter-run, spring run Chinook salmon issue.

g. The basic point is the TCD does not create nor manage metal issues. The TCD manages thermal characteristics of, and especially releases from Shasta Lake. To infer the TCD is the problem or the solution is a misrepresentation of the metal load and purpose of the TCD operations.

h. It should be noted that although the penstock inlet is at the mid-level of the dam, actual withdrawals from the reservoir could be from various elevations via the temperature control device. The elevation is determined by temperature operations for the Chinook salmon in the Sacramento River; typically higher elevations in the spring, moving lower through the summer into the fall.

3. Dilution of SPDD acid mine drainage (AMD) with Shasta Lake water

a. "To prevent future exceedances of numeric targets below Keswick Dam, any load reduction allocation has to address the complicated relationship between the timing of discharges from the different metal sources (e.g., discharges resulting from intense storm runoff) and Reclamation's control of Shasta Dam, SCDD, and SCPP releases." Basin Plan objectives – RWQCB

b. USEPA's IMM remedy assumed that the Shasta Dam releases would provide a base load of 2 ppb copper or less and the water would be suitable for dilution with Spring Creek discharges and still meet the Basin Plan objectives. If the proposed amendment would allow releases from WSC that result in higher metal loads entering Shasta Lake, the IMM remedy would be seriously impaired.

4. Increased reliance of Shasta Lake water due to less water available from Whiskeytown Lake in order to meet fishery needs in the Trinity River per Endangered Species Act (ESA) requirements and the Central Valley Project Improvement Act (CVPIA).

a. In the past when Shasta Lake water was near the Basin Plan objective of 5.6 ug/L for copper, Reclamation used Whiskeytown water for dilution of the SCDD releases.

5. Overall operations of Reclamation's Central Valley Project

   a. The proposed action will affect the way Reclamation operates. Any change in operation will have an impact on Reclamation's ability to meet authorized project purposes and would need further evaluation. Revised operations could have impacts on endangered species, which would have to be addressed.

   b. "The dams and diversions manipulate surface water flows to provide irrigation water, hydroelectric power, flood control, recreation, and potable water, as well as maintenance of navigation flows and conservation of fish in the Sacramento River Sacramento-San Joaquin Delta from intrusion of saline ocean water. Reclamation and other agencies determine the amount of water allocated to irrigation, urban, environmental needs, instream fishery flow requirements and other uses in part by reservoir storage." Basin Plan objectives – RWQCB

   c. Compliance with protective water quality standards is only one element of a fishery restoration plan meant to re-establish the strength of the Sacramento River fishery. Many other elements are also currently being implemented, including river flow regulation, temperature control, water diversion and the current restrictions on ocean fishing that are mentioned.

Environmental Review of Acid Mine Drainage in West Squaw Creek

Watersheds listed as impaired under section 303 of the Clean Water Act (CWA) are being review by the RWQCB. For WSC, a tributary of Shasta Reservoir, the RWQCB proposes to remove the beneficial uses of WARM, COLD, and SPAWN. WSC is impaired by AMD.

The RWQCB authored a UAA concerning WSC in a draft report. It chronicles the mining, environmental harm, and remediation activities in the West Shasta Copper-Zinc District.

- In 1941, WSC accounted for 26% and Spring Creek 54% of the AMD in the district. WSC is a significant AMD site.
- The AMD mechanism is outlined in the report. The low alkalinity of the WSC site or the Sacramento River watershed is not stressed. WSC is an ideal site for producing AMD: high sulfide concentration, little or no alkalinity, fractured rock to promote oxygen-water-sulfide chemical reaction, steep terrain to promote movement of reaction to fresh sulfide rock, hot dry summers to promote thermodynamics of the chemical reaction, and wet winters to flush the AMD.

- Table 2-6 of the UAA summarizes the decrease of AMD, as recorded at West Squaw Creek Bridge from 1968 to 2003. Remedial activates to point sources are described on pages 17- 20. Most of the remedial work was done by 1990, with a final push in 1996. The pH of WSC improved with each point-source remedial activity. The average dissolved copper concentration at the bridge decreased from 556 ppb in 1988 to 278 ppb in 1995 and 1996. The most recent documented fish kill below Shasta Dam occurred in December of 1996.
- The Sacramento River below Shasta Dam carries a significant load of copper. Reclamation measures water quality quarterly below the dam. A pulse of copper is measured in February and May. From 1999 to 2003, the Feb-May concentration averaged 2.8 ug/L and Aug-Nov 1.2 ug/L. This load of copper seems more significant than the reported (page 2 of UAA) 150 lbs/day of metal from WSC.
- The impact from WSC to aquatic life in Shasta Lake must be significant. The mixing zone provided by Shasta Lake is very large. The (California Toxics Rule) CTR criterion for copper is 4.1 ug/L. With an average of 2.8 ug/L below the dam, much of the lake could be impacted.
- The UAA does not stress that pH at the bridge exceeds drinking water, aquatic life, and agricultural water quality standards. These beneficial uses should be addressed. Precipitation of metals into Shasta Lake impacts aquatic life.
- The pH at WSC Bridge should be in compliance with water quality standards. Table 2-6 shows that water quality at this site is being measured only a few times each year.

See Attachment 1 - Baseline Water Quality Monitoring Program (Table)

Data

Reclamation has further questions regarding the data collection and data analyses documented throughout the UAA and the Staff Report. The questions raised could be answered by viewing further documentation. The following documents should be addressed where data results are discussed. These documents should be available for review in order to better analyze the data presented by MRRC:

- Sampling Plans
- Quality Assurance Project Plan (QAPP)
- Laboratory QA manual / Laboratory run logs
- Analytical methods used by lab(s) for analysis
- Last 3 years of the laboratory's performance sample results for certification

Best Management Plan

No Best Management Plan was cited in any of the documentation. There should be a Best Management Plan. If one does not exist, it should be addressed prior to initiating a Basin Plan amendment. If a Best Management Plan for WSC does exist Reclamation requests a copy of it for review.

nonpoint source Best Management Practices (BMPs)..." Without the current NPDES permit requirements these practices will be voluntary, not mandatory. There can be no assurance the practices will be maintained let alone improved.

1.1.3 *"...the RWQCB identified the need to further develop solutions to water quality regulations..."*

Removing the beneficial use for the WSC area is not a solution to water quality. It is a hindrance. The only issue the removal will solve is that of the violations. A solution would be one that helps the WSC area meet the required water quality criteria, not disregard it.

"...pursuing modifications to the beneficial uses of WSC offered and appropriate and reasonable means to:

1. *Identify designated beneficial uses that accurately reflect the existing and potential uses of the water course,*
2. *Minimizing the unnecessary expenditures of resources towards attaining water quality objectives that are not attainable using current technology thus allowing available resources to be allocated on more serious water quality issues."*

Pursuing this modification is not appropriate as it will open the door for all other mines covered under the Basin Plan to use this same method to become exempt from water quality objectives. Removing the beneficial use from the WSC will impact Shasta Lake and downstream waters significantly. If other mines get this same modification the results would be catastrophic given the number of mines covered in the Basin Plan.

The UAA has not demonstrated that the WSC does not have a potential beneficial use for freshwater habitat or fish spawning.

Complying with regulations is a responsibility of all answerable parties. The cost of *"attaining water quality objectives "*is not *an "unnecessary expenditure of resources"* and current technology is available to do so. The attainment of these objectives is required by all responsible parties at all properties owned and the argument that exempting one area will allow "available resources to be allocated on more serious water quality issues" is invalid. A property owner must use resources to comply with regulations despite the number of properties owned, therefore the property owner is required to deal with all water quality issues and not pick and choose which ones should be exempt and which ones require more remedies. If the amendment is approved it will open the door for all other mines covered under the Basin Plan to use this same method to become exempt from water quality objectives.

1.1.4 Since the Basin Plan *"does identify present and potential uses for Shasta Lake, to which WSC is a tributary"* it is important that the proposed amendment not be

implemented in order to protect the beneficial uses for Shasta Lake and the downstream waters.

"...the smelters were shut down due to economics and pressure from farm interests..."

> "The smoke and fumes from these smelters caused immediate major problems because of the poisonous toxins they released into the air. The toxins killed every type of vegetation it touched. Almost overnight, vegetation for miles around, in all directions, was soon dead or dying. In addition, fish were dying in all the streams and rivers, fruit trees as far south as Anderson and Cottonwood were dying, and the smell was so obnoxious it could even be tasted in the air. Violent protests resulted, the copper companies were taken to court, and by 1919 all the smelters were closed by order of the courts." - Shasta Historical Society

"...the seasonal flooding of the creeks and Sacramento River allowed for dilution of acidic waters. Following construction and filling of Shasta Dam...resulted in fish kills..."

The Sacramento River fishery was clearly impacted prior to the construction of the dams on the Sacramento River. But, the construction of Shasta Dam effectively served to improve the water quality of the Sacramento River above IMM from near lethal concentrations of 15 ppb copper to concentrations of less than 2 ppb. The dams also improved the general year round conditions in the Sacramento River and the fishery increased several fold.

During the Iron Mountain Mine (IMM) lawsuit it was determined by the court that a dam is not responsible for pollution from another source. In many cases dams have helped minimize the pollution in rivers. Claiming that dilution was a cure for the pollution is not a valid point. Additionally, the completion of the dam in 1945 cannot be blamed for fish kills. Fish kills were documented soon after mining in the area began;

> "...fish were dying in all the streams and rivers... and by 1919 all the smelters were closed by order of the courts."
>
> "The site was mined for iron, gold, silver, copper, zinc, and pyrite from the 1860's to 1963. Discharge of acid mine drainage (AMD), ladened with heavy metals to local tributaries and the Sacramento River, has resulted in numerous fish kills and a decline of fishery resources." - Shasta Historical Society
>
> "In 1898 the mine made its owners a million dollars a day.
>
> Nor is Iron Mountain the only copper calamity in the California Mountains. Acid drainage from the Penn Mine in Calaveras County, east of San Francisco in the Sierra foothills, which was active from the 1860s to the 1950s, produced a plume of toxic copper contamination in groundwater that flowed directly into the

Mokelumne River. The Camanche dam in 1963...helped check some of this." - http://www.sfbg.com/News/32/15/Features/gold.html

"Shasta Dam is a blessing in disguise even though it blocks some of the most important salmon habitat on the Sacramento River.

Dozens of old mines in the mountains northwest of Redding leaked heavy metal pollution into the river's tributaries earlier this century.

That ended when Shasta Dam was constructed in the 1940s. Now, any heavy metal runoff still leaking from the mountains settles at the bottom of Lake Shasta and never enters the Sacramento River." - Record Searchlight

"In 1998, due to failure of applicable technology to achieve water quality objectives, the RWQCB requested Mining Remedial Recovery Company (MRRC) to perform a UAA."

Given the length of time it took to complete the UAA, 1998 to 2004 (6 years), it is reasonable that much more data could have been collected and a stronger justification written. The UAA presented is lacking in engineering studies and data to support the action requested. Additionally, it could be presented that during this time period, knowing the RWQCB supported this action that new technologies have not been examined during these past 6 years. Since WSC is a tributary to Shasta Lake and the Sacramento River, have modeling studies been performed to show if there would be any impacts to freshwater fisheries and spawning in Shasta Lake and the Sacramento River?

There were fish kills prior to the mid-20th century. DFG did some river toxicity testing in the late 1930's. Prior to the construction of Shasta Dam the Sacramento River was a muddy, polluted river that had near lethal concentrations of copper above IMM and lethal concentrations of copper below IMM. There are no data however. The dead fish were washed down the river.

1.2.3 *"In establishing water quality objectives, the RWQCB considers...the following factors:*

- *Past, present, and probable future beneficial uses...*
- *Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area..."*

Past and probable future beneficial uses cannot be ruled out. The USEPA found historical evidence that gilled animals inhabited the creeks near the WSC area. In the absence of data a conclusion cannot be made that fish never inhabited WSC prior to mining operations. In section 1.1.4 it states *"Following construction and filling of Shasta Dam...resulted in documented fish kills in the vicinity of the West Shasta Copper-Zinc District..."* This statement verifies that fish inhabited the creeks in the past. Since significant improvements to water quality in the WSC have been made it is reasonable

to conclude that fish can inhabit this area in the future if improvements continue to be implemented.

Amending the Basin Plan will affect *"the edge of the mixing zone"* and would make water quality objectives difficult to meet in this area. The overall levels of copper in Shasta Lake continue to rise with time. The amendment will not confine the pollution to the mixing zone. The entire lake becomes one mixing zone for all the tributaries. Again, if this amendment is passed it will provide an opportunity for all mines around Shasta Lake to apply for amendments to the detriment of the overall *"main water mass"*.

1.2.5 The *"methods for modifying water quality standards and water quality-based permit limits in effluent-dependent streams"* have not been met by MRRC to date. It is premature to apply for an amendment until these methods have been implemented.

"A UAA may be used only if, (1) the existing uses in the stream will be protected and, (2) all controls required by...the CWA as well as reasonable and effective BMP for nonpoint sources have been implemented..."

The CWA requires that all mine portals be sealed and monitoring be conducted to ensure that no AMD is escaping the seals. This has not been successfully completed to date. On some of the newer seals there is not enough monitoring data to document that the seals are effective. The CWA has monitoring requirements that must be met before sealing of portals is considered complete and successful. Passage of the amendment will exempt MRRC from continuing improvement and monitoring

Some of the waste rock piles have had no BMPs implemented and there are no plans to implement any due to cost and alleged lack of technology.

With passage of this amendment BMPs will be voluntary and there will be no regulations to ensure BMPs are being implemented.

"This UAA is based on factor criteria (3): "Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place." Leaving the site as it is will cause more environmental harm than using current technology to clean it. The technology exists for the remedies required to protect the environment. The remoteness and steep slopes of the site does not rule out the technology available. It does mean the remedies will cost more money, which is not a factor to be taken into account to be exempted from environmental regulations.

2.2 Sites studies conducted from 1968 to 1969 in WSC. *"The study...addressed the seasonality of fish kills and suggested remedial efforts."* This shows evidence of past fish use.

In many places of the UAA it is claimed that the amendment will not affect Shasta Lake and the downstream waters. According to one account by Hansen and Weidlein the

"toxic copper concentrations extend a minimum of 1,645 meters into Shasta Lake from the mouth of WSC". This further concludes that drainage from WSC does and will continue to affect the water quality of Shasta Lake and the Sacramento River.

The U.S. Geological Survey prepared a report in 1978 to evaluate the problems of acid rock drainage (ARD) that suggested *"that waste rock piles may contribute significantly to metals concentrations"*. In 1983 Department of Water Resources (DWR) *"conducted a detailed evaluation of ARD in the WSC drainage."* Despite having knowledge of the impact of waste rock piles in the area BMPs have not been implemented on all of them (a requirement of the CWA).

2.3.1 BAT must be completed with a certain amount of monitoring data before a beneficial use can be removed by amendment, even if the BAT is not *"economically achievable"*. Since BAT has not been completed this amendment cannot be considered according to the CWA.

2.4.1 The weirs and continuous recording stations that were installed in 2003 have not provided enough data to determine if the requirements of the CWA have been met. It is premature to amend the Basin Plan based on these data.

2.4.3 Since the Shasta King Bulkhead seal replacement just took place in 2003 this does not provide enough data to determine if the requirements of the CWA have been met. It is premature to amend the Basin Plan based on these data.

2.4.4 Since weirs and continuous recording stations were installed in the Windy Camp Area in 2003 this does not provide enough data to determine if the requirements of the CWA have been met. It is premature to amend the Basin Plan based on these data.

2.4.5 The remote Keystone Bulkhead seal is still discharging 50% of the pre-plug levels. The CWA has not been complied with. It is premature to amend the Basin Plan based on this.

2.4.6 If the amendment is passed the issues addressed here will not be regulated, but will be voluntary. There is no assurance this work will be completed. This work should be completed prior to consideration of an amendment according to the CWA.

2.4.7 *"Remedial activities conducted between 1980 and 2003 have reduced copper loading in WSC...approximately 92%."* Given the additional work that MRRC plans to do the percentage of copper loading can be expected to rise from 92% and result in possible compliance with the current Basin Plan requirements. This information proves that there is more remedial work that can improve the water quality in WSC. Excellent progress has been made and the information shows more work is planned in the future. Amending the Basin Plan is premature at this stage and would encourage other mines in the area to apply for amendments to avoid additional costs of remedies.

2.5.1 *"Additional reductions will be realized when discharge from the Keystone blowout and seepage from the Upper Windy Camp portal are addressed."* If the Basin Plan is amended there is no incentive to continue this work and ensure it is completed.

Table 2-6 The metals concentrations have been improving significantly since the remedies were implemented. The sample sets are small so it is hard to determine if these numbers are truly representative. More data are required before a decision can be made.

The pH levels from 1999 to date are excellent. Again an amendment to the Basin Plan is not required.

3.3.1 *"All of these mineralized areas would have contributed natural acidity and metals loading to WSC prior to mining."* This claim cannot be made since there are no data to verify or confirm it.

"The most highly mineralized areas in the WSC watershed have been mined, with obvious disturbance to the surface. This makes it difficult to determine natural background water quality. ...water quality samples collected from non-mined areas...exhibit slightly elevated metals concentrations." These data are not presented in the UAA, even so it does not eliminate the fact that human disturbance caused the water quality problems and the site needs to comply with federal and state regulations.

3.3.2 This information does not eliminate the fact that human disturbance caused the water quality problems and the site needs to comply with federal and state regulations.

3.4.1 This section verifies the stream has good and excellent physical habitat scores. With extra remedies this stream does have potential future beneficial uses for WARM, COLD and spawning.

3.4.2 This section verifies that the only inhibitors of fish life in the stream are the mining waste constituents. With extra remedies this stream does have potential future beneficial uses for WARM, COLD and spawning.

Table 3-3 With improvement of the causes of elevated metals concentrations at sites WSC-3 to WSC-5 this stream could potentially support fish.

3.5.1.3 There are general questions about the fish sampling. Were block nets installed? If not fish at the fringe of the shock area feels the shock waves and will actually swim away from the direction of the electroshocker. For example; fish can feel the shock waves put out by an electroshocker, if block nets are not placed to catch these fish they will actually swim away from the electroshocker. If block nets are not installed many aquatic species could be missed. The person with a dip net can only scoop up the fish affected by the electroshocker because these fish are stunned. Why were sampling sites inaccessible? Why weren't other sites more accessible substituted? Why weren't the numbers of trout/salamanders found listed? Why was there only one sampling

event in the past 6 years (since the RWCQB requested the UAA)? Where are the data showing the measurements taken of the fish found? The document states that measurements were taken of the fish. What affect does not having data for sites WSC-6 and WSC-7 have on the overall assessment? Was a Sampling Plan written and followed? Were QA/QC and QA Project Plans written and followed?

3.5.2 Of the 6 sites below confluences 1 states *"No fish were identified..."* Either this is a typo or fish were found but not identified, *"No fish were observed at this site"* was noted for 2 of the sites and the last 2 sites were deemed *"not accessible"*. This information does not rule out a potential beneficial use of WSC for fish.

Table 3-5 Rainbow trout and Pacific Giant Salamanders were found at the background and the WSC-2 biological assessment sampling points. At the WSC-3 sampling site the results say *"No fish were identified at this site"*. At the WSC-4 and WSC-5 sites it states *"No fish were observed at this site"*. There is a discrepancy between the words "identified" and "observed". Does this mean there is a typo, or does one conclude that fish were observed at WSC-3 but not identified? Sites WSC-6 and WSC-7 were not accessible for sampling. Figure 3-1 shows WSC Bridge at the mouth of the tributary entering Shasta Lake. If there is a bridge, the site should be accessible and samples should have been taken here. All sites contained periphyton and benthic organisms (organisms that fish eat). There are fish in Shasta Lake and a conclusion could be made that if fish were found at the first site and at the mouth of the tributary that further remedial actions would clean the creek enough to support fish. It appears that this sampling was only conducted one time and if MRRC had 6 years to complete this UAA many more sampling events should have taken place in order for there to be enough data to form any conclusion. Also sampling events should have been conducted at a minimum of once each season (spring, summer, winter, and fall).

4.0 Cannot remove the designated beneficial uses for support of WARM, COLD, and spawning when Rainbow trout and salamanders were present at one of the sites sampled. The presence of aquatic life demonstrates that the beneficial use does exist.

5.3.1 Documentation in this section does not demonstrate that any engineering work was performed to substantiate the claims made.

Table 5-4 This table shows BATs and BMPs that are available but have not been implemented which is required per the CWA before an amendment to the Basin Plan can be proposed.

Mass Loading Summary – *"Additional reduction will be realized when discharge from the blowout and the Upper Windy Camp portal are routed through a treatment unit."* This demonstrates that improvements can continue to be made in an effort to meet water quality objectives. Amending the Basin Plan is premature.

Concentration Summary – Continuation of the *"consistent downward trend"* of annual dissolved copper, cadmium and zinc concentrations demonstrate that improvements are still being made. There is no need to amend the Basin Plan based on this information.

Comments to Staff Report - italics are used to designate quotations from the Staff Report

1.1.3 *"...reduction in loads...that would result in achieving applicable water quality objectives to protect WARM, COLD and SPWN is not feasible and not necessary because those uses are not "existing" uses..."* Achieving water quality objectives is feasible. Documentation has not proved that compliance is not attainable. Achieving water quality objectives is necessary. The water from WSC enters Shasta Lake and would affect many downstream operations such as: 1) the ability of other Shasta Lake and Sacramento River water users to meet Basin Plan requirements by increasing the amount of constituents currently in the water such as the 5.6ug/L copper limit, 2) Impair the ability to use Shasta Lake water for dilution of Spring Creek Debris Dam discharges (an existing cooperative agreement between USEPA and Reclamation), 3) Affect the operation of the Shasta Temperature Control Device (TCD), a CEQA requirement for downstream fisheries, and 4) less water will be available from Whiskeytown Lake for SCDD discharges now that more water is required for Trinity River flows (ESA) which means Shasta water may be the only available water for SCDD dilution. If the water coming out of Shasta is 4ug/L, for example, dilution cannot be achieved and the Basin Plan will be exceeded. Shasta copper levels continue to rise and passing the amendment to the Basin Plan will impact this significantly. In addition it will open the door for other mines in the Shasta area to apply for amendments thereby greatly impacting Shasta water quality.

The fact that MRRC is not in compliance does not mean *"it is not necessary to continue to require compliance with water quality objectives"*. If all entities that were out of compliance were to use this argument it would defeat the purpose of having environmental regulations.

1.1.4 It is not applicable to site *"naturally occurring sources"* as part of the non-point sources on the site. There is no way to know what the naturally occurring amounts would be. There are no data to substantiate this claim.

1.2.6 In order to qualify for an amendment according to the CWA all BATs and BMPs must be implemented and monitored. This has not been completed making the amendment premature.

1.2.8 In order to qualify for an amendment according to the CWA all BATs and BMPs must be implemented and monitored. This has not been completed making the amendment premature.

3.3.1 This alternative is the one that is most protective of Shasta Lake and Sacramento River water quality.

3.3.2 There are many remedial activities that can be implemented now. MRRC even sites several of them. The only justification shown as to why they have no been implemented is cost which is not a consideration for an amendment to the Basin Plan.

3.3.3 This alternative would adversely affect Shasta Lake and the Sacramento River. It would also affect the following Reclamation operations: 1) reduce ability to meet Basin Plan objectives (even though Reclamation does not own any mining properties). 2) Reclamation and USEPA have an agreement to manage discharges from the SCDD by diluting the discharges with Shasta Lake water. This is not possible when the water from Shasta Lake is already near Basin Plan levels, 3) TCD operation, 4) will make dilution of SCDD discharges more difficult since less water is available because of Trinity River fisheries flow requirements.

3.4

1. This alternative is not consistent with state and federal water quality laws and policies. The CWA requires all BATs and BMPs be implemented before an amendment is considered. All BATs and BMPs have not been completed.

2. This is not protective of current and post 1975 water quality uses (data have not been provided to demonstrate there is no beneficial use for fish) and improvements in water quality attained since 1975 (with the amendment passed all requirements become BMPs which are voluntary and are not regulated or enforced).

3. Technology does currently exist. MRRC even documents remedies that are available but not feasible due to cost (which is not a factor according to the CWA).

4. The RWQCB is still required to *"reasonably address regulatory issues associated with abandoned mine site remediation"* whether or not this amendment is passed. The only entity that stands to gain anything is MRRC by saving money by avoiding implementing remedies. If the amendment is passed other mines can file for amendments which will further impact Shasta Lake and the Sacramento River.

5. Responsible parties are legally required to focus efforts on all sites. This is not a valid reason to exempt a responsible party from meeting the Basin Plan objectives.

Current science does support feasible remedies for the types of issues at the WSC area.

3.4.2 The UAA has not provided sufficient data to prove there is not a beneficial use for fish. With the great improvements that have been made at the site it is incorrect to say there is no potential beneficial use, especially when fish and salamanders were found at one site, plus insufficient data are available to prove there are no fish. The habitat quality is excellent at all but one site which was rated as good. Implementing the required BATs and BMPs will further improve water quality increasing the likelihood of fish to populate the stream.

In regards to Finding No. 18, Spring Creek discharge is still managed under the Basin Plan; remedies for the removal of the contaminated sediments are currently being investigated by USEPA with cooperative help from several other state and federal agencies. There is no current funding to pay for the sediment removal, yet in order to meet Basin Plan objectives and to improve the environment this action is being explored despite technological challenges.

3.6 *"Available data, best professional judgment, and evaluation of BPT/BMP/BAT indicate that the immediately technically feasible future beneficial uses of WSC would be the same as the existing beneficial uses."* The available data are lacking, much more is needed to make a determination that would impact an entire lake and all the downstream waters. Best professional judgment should have included best professional engineering, which according to the UAA was not completed. Evaluation of the BPT/BMP/BAT indicates that there are still measures to implement before an amendment can be made to the Basin Plan according to the CWA.

4.1 If the Basin Plan were to be amended then the requirements for the WSC would change from 5.6ug/L (Basin Plan) to 1000ug/L (requirement for other uses identified). This would greatly impact the water quality of Shasta Lake and the Sacramento River. There would be no requirement or incentive for MRRC to implement further controls to discharges.

4.2.2 Amendment of the Basin Plan would affect the downstream water bodies since WSC is a tributary to Shasta Lake and flows into the water body.

4.2.3 All the BAT and BMP remedies have not been implemented making an amendment to the Basin Plan premature at this time according to the CWA.

Raising the level of copper from 5.6ug/L to 1000ug/L will adversely affect the downstream water bodies and is not protective of the down stream water bodies beneficial uses.

4.2.4 Steep terrain does not eliminate available remedies at the site. It does make the remedies more costly but this does not exempt a responsible party from completing required BATs and BMPs according to the CWA.

It is incorrect to claim that *"No external economic effects are expected to be incurred by the local public, MRRC, or any other parties as a result of adopting the proposed beneficial uses"*. There will be a cost to the public. Treatment plants, Reclamation, USEPA and other dischargers in the area must comply with the 5.6ug/L Basin Plan requirements. By allowing MRRC to be exempt from the more stringent objective the costs will rise for all other parties and those costs will be passed on to the water users. Additionally, other environmental regulations (ESA, CEQA, CWA, etc.) will be impacted and potentially violated if the Shasta Lake water exceeds the 5.6ug/L objective.

5.1

1) If the discharges from WSC are changed from 5.6ug/L of copper to 1000ug/L this will impact the level of water quality necessary to protect the beneficial uses of Shasta Lake and the Sacramento River.

2) If the overall water quality exceeds the Basin Plan objectives due to this change this section sounds as if the other entities meeting the Basin Plan requirements will have to compensate for the WSC discharges, or the state will lower water quality standards if it *"is necessary to accommodate important economic or social development in the area in which the waters are located...Further, the State shall ensure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for non-point source control"* (this would not include WSC because they would be exempt – so would these requirements fall upon the remaining entities that are meeting Basin Plan objectives if not for the high levels of constituents mixing into Shasta Lake and the Sacramento River?)

There will be no incentive for MRRC to continue with BMPs as they will be voluntary with no regulatory oversight. Technology is currently available to reduce discharges from WSC but MRRC has repeatedly documented cost as being a prohibiting factor. If MRRC is not willing to spend the money now and has stated that the amendment will allow the money to be spent in other areas of the watershed does this not show that MRRC has no intention of implementing new remedial measures even if available (and they are) and the cost goes down.

5.2.1 See 5.1 comments

5.2.2 The amendment will result in overall degradation of downstream water bodies water quality.

Not implementing the amendment will ensure measures will be carried out in an effort to comply with the Basin Plan objectives. Amending the Basin Plan will decrease the incentive to improve water quality at WSC.

5.2.4 This is not a valid point as all responsible parties are responsible for all site(s) remediation. Granting this amendment will encourage other mines in the area to file for the same amendment.

5.2.5 Under the amendment the remedies will be purely voluntary. There will be no regulatory authority. The data provided do not support the claim that WSC does not have a potential beneficial use for aquatic life.

Technology currently exists but the remedies have not been implemented, not even the required BATs and BMPs have been completed, required before an amendment to the Basin Plan can be approved.

5.3.2 The proposed amendments do impact water quality. The levels of copper in Shasta Lake are rising, not going down. At times the levels in Shasta Lake meet or exceed the Basin Plan objectives. This is without an amendment. The water quality will degrade if an amendment is passed.

5.3.3 The proposed amendment will change the metals objectives considerably. Copper will change from 5.6ug/L to 1000ug/L. Under the amendment BMPs will be voluntary, not required. The current required BMPs have not yet been met, which is required for an amendment according to the CWA.

Data provided in the UAA do not rule out the potential for beneficial uses for fish.

5.3.4 The water quality at WSC has been declining since 1999, which was a good year for this area, since that time the metal levels have been on the rise. This indicates that there is already a reduction of water quality from the documented past. This reduction can be expected to increase with less stringent requirements.

Technology currently exists but the remedies have not been implemented, not even the required BATs and BMPs have been completed, required before an amendment to the Basin Plan can be approved.

7.2 The levels in WSC will continue to rise, which may or may not affect the current conditions that exist there, but the increase will affect beneficial uses of downstream water bodies.

7.4 The Biological Resources box should be checked here, and depending on the metals and pH levels Hazards and Hazardous Materials.

The data do not support the claim *"that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared".*

7.5.1.4 Biological Resources (a), (b), (d) and (f) should be marked "Yes".

7.5.1.7 Hazards & Hazardous Materials (a) and (b) might be affected depending on levels of metals and pH.

7.5.1.8 Hydrology & Water Quality (a - yes) and (b - ?)

7.5.2 Findings (a-yes), (b-yes, especially if other mines get amendments also), (c-lack of fishing)

7.6.1 Downstream water bodies will be affected.

7.6.4 Impacts will occur. This amendment will open the door for other mines in the area to apply for the same amendment.

7.6.7 Depending on how high the levels rise there are potential for hazards.

7.6.17 Downstream water bodies will be affected.

7.7 The amendment will affect the following Reclamation operations: 1) Ability to meet Basin Plan objective of water quality – particularly the copper concentration amount of 5.6 ug/L, 2) Temperature Control Device (TCD) operation, 3) dilution of SPDD acid mine drainage (AMD) with Shasta Lake water, 4) increased reliance of Shasta Lake water due to less water available from Whiskeytown Lake in order to meet fishery needs in the Trinity River per Endangered Species Act (ESA) requirements and the Central Valley Project Improvement Act (CVPIA), 5) overall operations of Reclamation's Central Valley Project.

Passage of the amendment will open the door for other mines to also apply for amendments.

7.8 Steep unstable and inaccessible topography and lack of utilities is not a valid reason to be granted an exemption from the Basin Plan objectives. There are many sites with the same situations that are employing current technology to remediate the waste.

Table 7-1 This documents the BATs and BMPs that are not used yet are required under the CWA for a Basin Plan amendment.

7.8.1 This is preferable to the other 2 alternatives (which are essentially the same). It is beneficial for the water quality of downstream water bodies to adopt a "No Action".

7.8.2 This alternative can be prolonged indefinitely and is essentially the same as alternative 3.

7.9

1) The amendment is not consistent with federal and state laws and policies.

2) The amendment is not protective of current and post 1975 uses. There are not enough data to rule out the possibility of potential aquatic life.

3) Technology does currently exist. The UAA has not proven otherwise.

4) This is not a valid claim.

5) Responsible parties are liable for cleanup of all sites owned regardless of how many are owned.

Comments to Appendix B - italics are used to designate quotations from the UAA

Fisheries – *"WSC…has not supported a fishery since mining began…WSC is considered a 'dead' stream in most documents reviewed. The biological evaluation conducted by DFG for the UAA showed increases in macro invertebrates and return of fish to certain reaches."* This paragraph is contradictory; if fish are found it cannot be considered a 'dead' stream. More sampling needs to be done before it can be said this area cannot sustain aquatic life. Furthermore, if a 'return of fish to certain reaches' was documented by DFG that would imply there were fish before mining operations began. This would mean WSC has a past beneficial use, and the presence of fish recently could mean there are present and potential future beneficial uses.

"Acid rock drainage continues to degrade portions of WSC." These portions of WSC should be examined and all BATs and BMPs should be implemented to improve those portions of WSC.

"Below Shasta Dam the Sacramento River is habitat for an anadromous fishery that includes five runs of Chinook salmon and steelhead." Basin Plan water quality objectives are crucial for survival of this fishery. Since WSC discharges enter the Sacramento River the Basin Plan objectives should be applied to the discharges.